

## **ACACIA PORCATA (MIMOSACEAE), A NEW SPECIES FROM SOUTH-EAST QUEENSLAND**

Paul I. Forster

Botany Department, University of Queensland, St Lucia, Qld 4067

### Summary

*Acacia porcata* P. Forster is described and compared with *A. longipedunculata* Pedley. It has a restricted distribution in the southern part of the Burnett Pastoral District, Queensland and occurs in an area rich in endemic taxa.

Species of *Acacia* section *Lycopodiifoliae* Pedley are characterised by regular, verticillate phyllodes and associated stipules (Pedley 1978, 1986). The architecture and development of the phyllode-stipule whorls are unusual within this section of *Acacia* and studies of *A. longipedunculata* Pedley and allied species have resulted in new interpretations of the relationships between pinnate juvenile leaves, phyllodes, stipules and hairs in *Acacia* (Rutishauser & Sattler 1986; Sattler *et al.* 1988).

During a vegetation survey in the Mundubbera Shire, south-east Queensland, a population of a distinctive *Acacia* taxon allied to *A. longipedunculata* was discovered and is considered to represent a new species. Previously *A. baueri* Benth., an atypical member of section *Lycopodiifoliae*, was the only member of the section to be recorded south of the Tropic of Capricorn in eastern Australia with most species growing in northern Australia (Pedley 1972, 1978; Maslin & Pedley 1988).

**Acacia porcata** P. Forster *sp. nov.* affinis *A. longipedunculatae* Pedley, sed phyllodiis 13-19 in quoque verticillo, tubo calycis non porcato, lobis calycis ovatis, leguminibus complanatis, 11-27 mm longis, 5-6 mm latis, costa prominenti longitudinali extus praeditis differt. **Typus:** Queensland, BURNETT DISTRICT: 5.5 km W of "Toondahra", August 1988, P.I. Forster 4673 & C.G. Wilkinson (holo: BRI; iso: PERTH).

Decumbent shrub less than 0.5 m tall; branchlets terete, resinous, becoming greyish, indumentum of dense, stiff, white hairs 1-1.5 mm long; internodes to 3 cm long, 2-3 mm diameter. Phyllodes  $\pm$  terete, 5-30 mm long, 0.5-1 mm diameter, venation obscure, tapered at the base and abruptly contracted at the apex into a mucro c. 0.25 mm long, straight or slightly incurved in upper part, viscid, olive-green, with sparse covering of white hairs similar to those on branchlets, 13-19 per whorl; stipules persistent, similar in number to phyllodes in whorl, brown, upright, subulate, deep red-brown, to c. 1 mm long. Heads 35-40-flowered, globular; peduncles 10-20 mm long, usually much longer than the phyllodes, viscid; bracteoles linear-lanceolate, c. 2 mm long and 0.5 mm wide, with stiff white hairs. Flowers 5-merous; calyx tube 1-1.25 mm long, c. 1 mm diameter; lobes lanceolate-ovate, tips strongly incurved, 0.75-1 mm long, c. 0.5 mm wide, with few sparse hairs externally; corolla tube c. 1 mm long and 1 mm diameter; lobes ovate-lanceolate, not striate, 1-1.5 mm long, c. 0.5 mm wide, with few sparse hairs externally; stamens c. 2-3.5 mm long; anthers 0.1-0.2 mm long; pistil 3-3.5 mm long, glabrous; ovary c. 1 mm long and 0.5 mm wide, glabrous. Pod sessile, flat, viscid, 11-27 mm long, 5-6 mm broad, conspicuously ridged externally along middle above seeds, containing 1-4 seed, dehiscent. Seed arranged longitudinally in pod, black, shiny, slightly viscid, with slight ridge on side, c. 5 mm long, 3.5 mm broad and 1.5 mm thick; aril c. 2 mm long, white. **Fig. 1.**

**Other Specimen examined:** Queensland. BURNETT DISTRICT: 5.5 km W of "Toondahra", Nov 1988 (fruiting), Forster 4827 (BRI).

**Distribution, habitat and ecology:** *A. porcata* is restricted to a small area in Mundubbera Shire, c. 45 km SSE of Mundubbera. The new species was collected growing on a granite rock outcrop at c. 440 m among *Triodia* sp. with a scattered overstorey of *Eucalyptus* sp. aff. *E. paniculata*, *E.* sp. aff. *peltata* subsp. *leichhardtii* and *E. exserta* F. Muell. Other species in close association were *Grevillea whiteana* McGillivray, *G. floribunda* R. Br.,

*Acacia grandifolia* Pedley, *A. tenuinervis* Pedley, *A. eremophiloides* Pedley & P. Forster, *A. leiocalyx* (Domin) Pedley, *A. buxifolia* subsp. *pubiflora* Pedley, *Newcastelia velutina* Munir, *Platysace lanceolata* (Labill.) Druce, *Lysicarpus angustifolius* F. Muell., *Xanthorrhoea johnsonii* Lee and *Cryptandra* sp. nov.

The area supports a large fuel-load of *Triodia* species and other taxa, and it would be expected that the population would be subjected to occasional wildfires.

**Phenology:** Flowering in August and probably also in September, fruiting in November.

**Notes:** The form and number of phyllodes, number of flowers per head and calyx and bracteole morphology were considered to be useful diagnostic taxonomic characters for species related to *A. porcata* (Pedley 1972). The 12 species previously known in the section *Lycopodiifoliae* (Pedley 1978) were divisible into four groups on the basis of calyx type (Pedley 1972). *A. porcata* appears to be most closely related to *A. longipedunculata* in most characters but does not have a conspicuously ribbed or thickened calyx tube as in that species. The sepals of *A. porcata* are more similar to those of *A. galioides* Benth., *A. chippendalei* Pedley and *A. orthotricha* Pedley, but in other characters it is not particularly close to these taxa. The pod of *A. porcata* is unlike that of any of the other species of the section and is unusual for the genus in Queensland due to the longitudinal ridge on the outside. The pod is also noteworthy for the small number of septa and seeds present; single-seeded pods being quite common (Table 1). The maximum number of seed per pod in *Acacia* species has been found to be correlated to the number of pollen grains in a polyad with the pod seed number never exceeding the polyad grain number (Kenrick & Knox 1982). Examination of polyads of *A. porcata* revealed that they contain eight grains. It has not been possible to observe ovule number, although ultimately it will be this rather than polyad grain number that is related to seed set per pod.

While several species of *Acacia* have viscid foliage, none have been recorded as having viscid seed. The viscid nature of the seeds of *A. porcata* is probably due to the viscid substance on the pods infiltrating through the pod wall on to the seeds. As noted by Pedley (1978), few collections are made of fruiting *Acacias* and further observations on other species are desirable to investigate this situation fully.

*A. porcata* has seeds with a small white aril that may be classified as 'ant-dispersed diaspores' (O'Dowd & Gill 1986). The viscid nature of both the pods and seeds, results in a compound dispersal unit of up to 7 pods with associated seeds. This unit is dispersed by gravity and wind for up to 3 m from the parent plant with the actual distance of dispersal being determined by surrounding rocks.

Table 1. Percentage of seeds per pod in a sample of 146 pods of *Acacia porcata*.

	Number of seeds per pod			
	1	2	3	4
Percentage of pods	38	47	14	1

**Conservation status:** *A. porcata* is presently known from the type locality where six plants have been observed within an area of 200 m<sup>2</sup>. A provisional conservation coding of 1E (after Briggs & Leigh 1988) is given. As outlined by Pedley & Forster (1986) and Forster (1987), the general area where this species of *Acacia* has been found has a number of restricted endemic taxa and is worthy of conservation.

**Etymology:** The epithet alludes both to the ridged nature of the outside of the pod and to the hilly/ridged nature of the habitat.

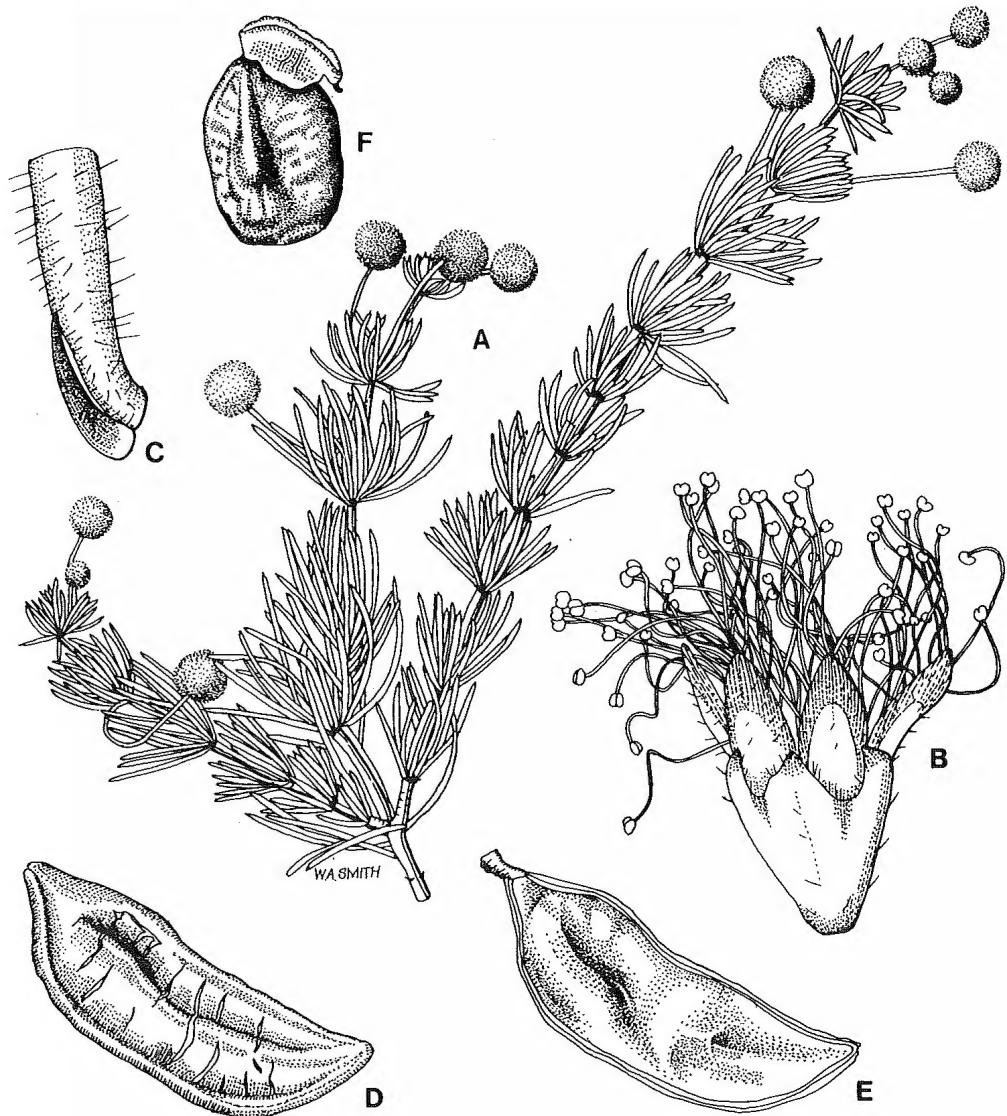


Fig. 1. *Acacia porcata*: A. habit  $\times 1$ . B. flower  $\times 10$ . C. stipule at base of phyllode whorl  $\times 20$ . D. external view of pod showing longitudinal ridge  $\times 2$ . E. internal view of pod  $\times 2$ . F. seed  $\times 5$ . A–D, Forster 4673 & Wilkinson; E, F, Forster 4827.

#### Acknowledgements

Mr C. G. Wilkinson, Queensland National Parks and Wildlife Service provided transport and company during the trip on which *A. porcata* was discovered. Mr L. Pedley (BRI) provided comments on the manuscript and the Latin diagnosis. Mr W. Smith (BRI) provided Figure 1.

#### References

- BRIGGS, J.D. and LEIGH, J.H. (1988). Rare or Threatened Australian Plants. 1988 Revised Edition. Australian National Parks and Wildlife Service Special Publication No. 14. Canberra: Australian National Parks and Wildlife Service.
- FORSTER, P.I. (1987). Notes on *Newcastelia velutina* (Chloanthaceae). *Queensland Naturalist* 28: 84–86.

- KENRICK, J. & KNOX, R.B. (1982). Function of the polyad in reproduction of *Acacia*. *Annals of Botany* 50: 721-727.
- MASLIN, B.R. & PEDLEY, L. (1988). Patterns of distribution of *Acacia* in Australia. *Australian Journal of Botany* 36: 385-393.
- O'DOWD, D.J. & GILL, A.M. (1986). Seed dispersal syndromes in Australian *Acacia*. In D.R. Murray (ed.), 'Seed Dispersal' pp. 87-121. North Ryde: Academic Press Australia.
- PEDLEY, L. (1972). A revision of *Acacia lycopodiifolia* A. Cunn. ex Hook. and its allies. *Contributions from the Queensland Herbarium* No. 11.
- PEDLEY, L. (1978). A revision of *Acacia* Mill. in Queensland. *Austrobaileya* 1: 75-234.
- PEDLEY, L. (1986). Derivation and dispersal of *Acacia* (Leguminosae), with particular reference to Australia, and the recognition of *Senegalia* and *Acacia*. *Botanical Journal of the Linnean Society* 92: 219-254.
- PEDLEY, L. & FORSTER, P.I. (1986). *Acacia eremophiloides* (Mimosaceae) a new species from South-eastern Queensland. *Austrobaileya* 2: 277-280.
- RUTISHAUSER, R. & SATTLER, R. (1986). Architecture and development of the phyllode - stipule whorls of *Acacia longipedunculata*: controversial interpretations and continuum approach. *Canadian Journal of Botany* 64: 1987-2019.
- SATTLER, R., LUCKERT, D. & RUTISHAUSER, R. (1988). Symmetry in plants: phyllode and stipule development in *Acacia longipedunculata*. *Canadian Journal of Botany* 66: 1270-1284.

Accepted for publication 15 May 1989